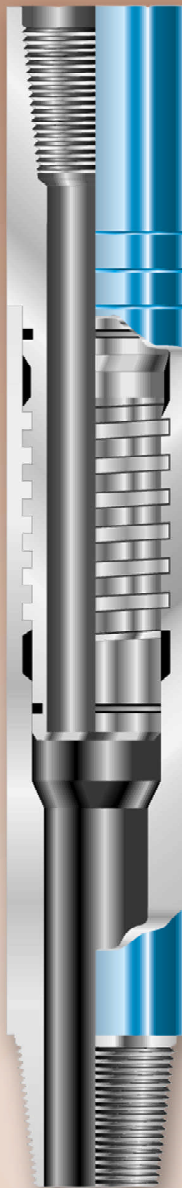


COARSE THREAD SAFETY JOINTS

Instruction Manual 4605



Coarse Thread Safety Joints

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The designs and specifications for the tools described in this instruction manual were in effect at the time this manual was approved for printing. National Oilwell Varco, whose policy is one of continuous improvement, reserves the right to discontinue models at any time, or to change designs and specifications without notice or without incurring obligation.

Sixth Printing, September 2005

General Description

The **Bowen Coarse Thread Safety Joint** allows quick release from drilling, fishing, testing, washover or tubing strings should they become stuck, leaving a minimum of pipe in the hole, thereby reducing the problems of fishing or sidetracking.

The new design is simple, eliminating the need of a release ring mechanism and lengthy disengagement procedures.

The Bowen Coarse Thread Safety Joint has a rugged coarse thread design which will not loosen or wedge during operation. Once in the string the Safety Joint is resistant to vibration, heavy loads and left or right hand torque. The tool will disengage by simple left hand rotation at approximately 40% of the tool's right-hand make-up torque.

O-ring seals above and below threads seal against internal and external fluid pressures. Both packers are rated for all normal pump pressures in continuous service.

The tool has a simple, two-piece, two-seal design which allows operators easy disassembly during cleaning and lubrication.

The new Safety Joint is available in a full range of sizes, types, lengths, etc. National Oilwell will manufacture the tool to fit the customer's exact requirements.

Use

The Bowen Coarse Thread Safety Joint is used in a drilling, fishing, testing, washover or tubing string whenever and wherever a releasing safety connection is needed.

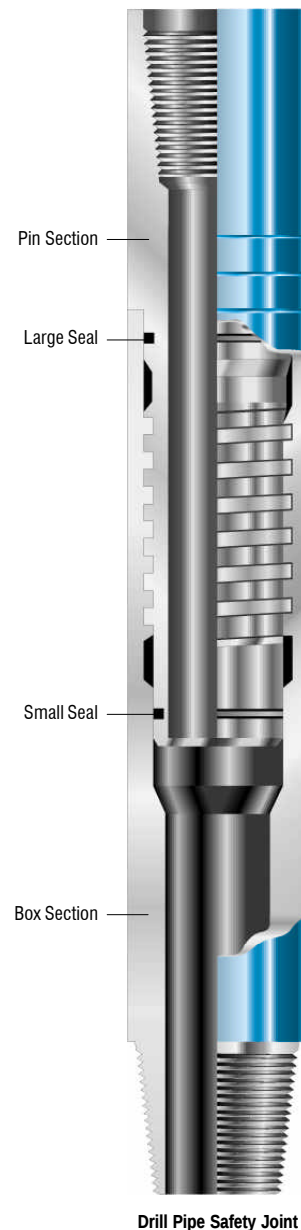
In Drilling Strings — The Safety Joint is usually located far enough above the drill collars to prevent compression loading and to avoid sticky or heaving formations. Drill pipe Safety Joints have drill pipe box and pin connections with the O.D. and I.D. corresponding to the drill pipe tool joints.

In Fishing Strings — The Safety Joint is usually located immediately above the grappling or fishing tool and below any accessory tool such as jars or bumper subs.

In Drill Stem Testing Strings — The Safety Joint is usually located above the packer and test tool but below any accessory tool such as a jar or bumper sub.

In Washover Strings — The Safety Joint is located between the drill pipe and the washover string. Washover Safety Joints are provided with a drill pipe box connection and a washover pin connection. Diameters conform to washover pipe.

In Tubing Strings — The Safety Joint is usually located immediately above the tubing catcher or production packer. Tubing Safety Joints have tubing box and pin connections with O.D.s corresponding to tubing couplings and I.D.s corresponding to the tubing.



Construction

The Bowen Coarse Thread Safety Joint consists of an upper Pin Section, a lower Box Section and two seals. The upper Pin Section has a box connection up for connecting to the tool joint and a male coarse thread down for connection to the Box Section. The Box Section has a female coarse thread matching the male thread of the Pin Section and has a tool joint pin connection down for connecting to the pipe.

The coarse thread design of the Pin and Box Sections allows speed and ease of engagement. When the Safety Joint is made up tightly, the joining coarse threads grip each other securely, pulling the surfaces into complete contact and therefore, form the Safety Joint into a rigid unit.

The Pin Section is grooved at the top and bottom to accommodate the O-ring type seals which seal the Safety Joint from both internal and external fluid pressures. Both seals are rated for high pressure operation, capable of withstanding up to 10,000 psi in continuous service.

Operation

1. First, examine the Pin Section to ascertain that the Top and Bottom seals are in good condition and are properly installed in the grooves.
2. Thoroughly lubricate the coarse thread surfaces of the Pin Section and the Box Section. Make up the Pin and Box Sections by hand.

3. Position the Safety Joint at the desired point in the string.

(a) Drilling String — Position the Safety Joint far enough above the Drill Collars to avoid compression loading and to avoid sticky or heaving formations.

(b) Fishing String — Position the Safety Joint immediately above the grappling or fishing tool.

(c) Drill Stem Test — Position the Safety Joint above the packer and testing tool.

(d) Washover String — Position the Safety Joint between the washover string and the drill pipe.

(e) Tubing String — Position the Safety Joint above the tubing catcher or the production packer.

4. Screw the tool joint pin of the Safety Joint into the joint box of the pipe and make it up as an ordinary tool joint.

5. With one tong on the Box Section and one tong on the Pin Section, make up the Safety Joint to the same degree of tightness as the tool joints in the string.

6. Screw the pin end of the next stand of pipe into the box of the Safety Joint and make it up similarly to an ordinary tool joint connection and run the pipe into the well.

To Disengage the Safety Joint in the Hole

1. To break the connection, rotate the string to the left at 40 percent of the tools right hand make-up torque one turn in straight or shallow holes, two or three turns in deep or crooked holes.

2. Now, pick up the string until at least 1,000 lbs. of weight but not more than 2,000 lbs. remains on the Safety Joint. If more than 2,000 lbs. is applied, the Safety Joint will release but the possibility of damage to the shoulder at the point of disengagement exists.

3. Pick the string up slowly while rotating to the left to unscrew the Safety Joint. As the coarse threads unscrew, they will lift the pipe approximately 1/2 inch per revolution.

4. During the releasing of the Safety Joint, the pipe weight will decrease. The operator should be careful to maintain the pipe weight at 1,000 lbs. but not more than 2,000 lbs. as noted in Step 2 above.

To Reengage the Safety Joint in the Hole

1. Lower the string into the hole until the Pin Section contacts the Box Section.
2. Carefully apply one point of weight and rotate slowly to the right. An increase in torque will indicate that the Safety Joint has reengaged.

Precautions

Use lubricating oil or a similar lubricant to lubricate the coarse threads of the Pin Section and Box Section of the Safety Joint.

Whenever the Safety Joint is used in continuous operation such as a drilling string, it is recommended that it be dismantled periodically (at least once a week). The seals should be replaced and the two sections be thoroughly greased.

Maintenance

To guard against misruns and to prolong the life of the tool, the Bowen Coarse Thread Safety Joint should be dismantled after use, thoroughly cleaned, lubricated and serviced before storing.

1. Dismantle the Safety Joint. If the two sections are not in tight engagement, they may be unscrewed by hand. If, on the other hand, the two sections are in tight engagement, place a tong wrench on each section and unscrew the Pin Section from the Box Section.

NOTE: Be sure to protect the tool joint pin connection before dismantling.

2. Thoroughly clean each section.
3. Replace the large seal (top) and the small seal (bottom).
4. Thoroughly lubricate the coarse thread surfaces of the Pin Section and Box Section. Make up the Pin and Box Sections by hand.
5. Reassemble the Safety Joint. Paint or lubricate all exterior surfaces to prevent rust or deterioration.

Specifications — Bowen Drill Pipe Safety Joints

Size	2-3/8	2-3/8	2-7/8	2-7/8	2-7/8	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	4	4
Type	API Reg.	API I.F.	API Reg.	Hyd. I.F.	API	API Reg.	Hyd. I.F.	API	API	API	API	API
	Acme	Hyd. I.F.	Acme		I.F.			F.H.	Reg.	I.F.	F.H.	I.F.
	Reg.		Reg.									
Joint O.D.	3-1/8	3-3/8	3-3/4	3-7/8	4-1/8	4-1/4	4-1/2	4-5/8	4-3/4	4-3/4	5-1/4	5-3/4
Bore of Joint	1	1-3/4	1-1/4	2-1/8	2-1/8	1-1/2	2-9/16	2-7/16	1-1/2	2-11/16	2-13/16	3-1/4
Complete Assembly	Part No. Weight	149342	149346	149350	149354	149358	149362	149366	149378	149374	149378	149382
		40	40	60	48	58	70	63	72	69	68	105
Pin Section		149343	149347	149351	149355	149359	149363	149367	149379	149375	149379	149383
Box Section		149344	149348	149352	149356	149360	149364	149368	149380	149376	149380	149384
O-Ring – Small		568325	568226	568329	—	568333	568333	—	568337	—	568337	—
O-Ring – Large		568329	568332	568333	—	568337	568337	—	568341	—	568341	—

Specifications — Bowen Drill Pipe Safety Joints, Cont'd

Size	4-1/2	4-1/2	4-1/2	4-1/2	5-1/2	5-1/2	5-1/2	6-5/8	6-5/8	6-5/8	7-5/8	8-5/8	
Type	API	API	X-hole	API	API	API	API	API	API	API	API	API	
	Reg.	F.H.		I.F.	Reg.	F.H.	I.F.	Reg.	F.H.	I.F.	Reg.	Reg.	
				Hyd. I.F.									
Joint O.D.	5-1/2	5-3/4	6	6-1/8	6-3/4	7	7-3/8	7-3/4	8	8-1/2	9	10	
Bore of Joint	2-1/4	3	3-1/4	3-3/4	2-3/4	4	4-13/16	3-1/2	5	5-29/32	4	4-3/4	
Complete Assembly	Part No. Weight	149394	149398	149406	149406	149410	149414	149418	149422	149426	149430	149434	149438
		130	120	115	115	225	205	195	315	270	260	440	520
Pin Section		149395	149399	149407	149407	149411	149415	149419	149423	149427	149431	149435	149439
Box Section		149396	149400	149408	149408	149412	149416	149420	149424	149428	149432	149436	149440
O-Ring – Small		—	568344	568347	568347	—	—	—	568355	568435	—	568361	—
O-Ring – Large		—	568349	568429	568429	—	—	—	568359	568438	—	568363	—

Specifications — Bowen Tubing Safety Joints

Size	3/4	1	1	1-1/2	2	2-1/2	2-7/8	3	3
Type	EUE	D.S.S. Hardy Griffin	EUE Hydril	C.S.	EUE	EUE	Hydril C-100	EUE	EUE
Joint O.D.	1.660	1.590	1-29/32	2-1/2	3-1/16	3-21/32	3-1/2	4-1/2	5
Bore of Joint	.812	.812	1	1-1/2	1-59/64	2-7/16	2-3/8	3	3
Complete Assembly	Part No. Weight	149442 3-2/4	149446 4	149450 6-1/4	149454 3-7/8	149458 18	149462 23	149466 47	149470 50
Pin Section	149443	149447	149451	149455	149459	149463	149467	149471	149475
Box Section	149444	149448	149452	149456	149460	149464	149468	149472	149476
O-Ring – Small	—	—	568025	568131	568138	568146	—	568152	—
O-Ring – Large	—	—	568128	568225	568230	568233	—	568241	—

Specifications — Bowen Washover Pipe Safety Joints

Size	4	4-1/2	5	5-1/2	5-3/4	7	7-3/8	7-5/8	8-1/8	9	9-5/8	10-3/4	11-3/4	
Type	F.J.	F.J.	F.J.	F.J.	F.J.	F.J.	Hydril F.J.	F.J.	F.J.	F.J.	F.J.	F.J.	F.J.	
Joint O.D.	4	4-1/2	5-3/8	5-1/2	5-3/4	7-5/16	7-3/8	8	8-5/32	9-3/8	10-1/8	11-1/16	11-3/4	
Bore of Joint	1-1/4	1-1/4	2-1/8	2-9/16	2-7/16	3-3/4	3	3-3/4	3-5/32	4		4	3-5/8	
Complete Assembly	Part No.	149478	149482	149486	149490	149494	149498	149502	149506	149510	149514	149518	150047	151992
	Weight	42	50	54	58	141	103	339	135	439	210	240	791	—
Pin Section	149479	149483	149487	149491	149495	149499	149513	149507	149511	149515	149519	150048	151993	
Box Section	149480	149484	149488	149492	149496	149500	149504	149508	149512	149516	149520	150049	151994	
O-Ring – Small	—	568340	—	568244	568350	—	—	568438	568364	—	—	568274	568275	
O-Ring – Large	—	568241	—	568248	568251	—	—	563440	568263	—	—	568375	568276	

*Note: Left-hand connections available upon request.

How to Order

Specify:

- (1) Name and number of assembly or part
- (2) Connections, if other than standard
- (3) Any spares desired, by name and part number

Corporate Headquarters

10000 Richmond Avenue
Houston, Texas 77042
United States
Phone: 713 346 7500
Fax: 713 346 4493

Alaska

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Anchorage, Alaska 99503
United States
Phone: 907 563 5253
Fax: 907 561 0071

California

4117 Atlas Court
Bakersfield, California 99308
United States
Phone: 661 395 0165
Fax: 661 328 1827

Louisiana

108 Nova Drive
Broussard, Louisiana 70518
United States
Phone: 337 839 2400
Fax: 337 839 2211

190 Thompson Road
Houma, Louisiana 70363
United States
Phone: 985 851 1111
Fax: 985 851 1117

Mississippi

2930 Industrial Blvd.
Laurel, Mississippi 39440
United States
Phone: 601 649 8671
Fax: 601 649 8673

New Mexico

#14 CR 5860
Farmington, New Mexico 87401
United States
Phone: 505 326 4303
Fax: 505 326 4304

North Dakota

3202 1st Avenue West
Williston, North Dakota 58801
United States
Phone: 701 774 0091
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3800 Thomas Road
Oklahoma City, Oklahoma 73179
United States
Phone: 405 677 2484
Toll Free: 877 760 1711
Fax: 405 677 2457

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1249 Commerce Road
Alice, Texas 78332
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Phone: 361 664 8013
Fax: 361 664 0462

8411 Irvington Boulevard*
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United States
Phone: 713 691 7800
Fax: 713 691 7807

2810 Highway 135 North
Kilgore, Texas 75662
United States
Phone: 903 984 2553
Fax: 903 984 7170

10720 West I-20 East
Odessa, Texas 79765
United States
Phone: 432 563 1173
Fax: 432 563 1182

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Rosenberg, Texas 77471
United States
Phone: 281 341 5365
Fax: 281 344 1986

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1553 East Highway 40
Vernal, Utah 84078
United States
Phone: 435 789 0670
Fax: 435 789 6568

West Virginia

Route 2, Murphy Run Road
Clarksburg, West Virginia 26301
United States
Phone: 304 622 4303
Fax: 304 623 2174

Wyoming

1283 N. Derrick Drive
Unit 1, Box 2
Casper, Wyoming 82604
United States
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Fax: 307 237 2546

Canada

9120 – 34A Avenue
Edmonton, Alberta T6E 5P4
Canada
Phone: 780 702 5209
Fax: 780 463 2348

3550 93 Street*
Edmonton, Alberta T6E 5N3
Canada
Phone: 780 944 3929
Fax: 780 430 0760

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1010 540 5th Avenue SW (Office)
Calgary, Alberta T2P 0M2
Canada
Phone: 403 250 8000
Fax: 403 294 5790

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2 Isbourne Way
Winchcombe
Cheltenham
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P.O. Box 61490
Jebel Ali Free Zone
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Phone: 971 4 8838776
Fax: 971 4 8838795

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Jl. Raya Cilandak KKO
P.O. Box 7541
Jakarta, 12560
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Fax: 62 21 782 6086

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Dyce, Aberdeen AB21 0BF
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Phone: 441 224 334800
Fax: 441 224 723034

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9 Tuas Avenue 5
Singapore, 639335
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Germany

Edesser Straße 1
31234 Edemissen Berkhöpen
Postfach 31232
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Fax: 49 5176 9767 22

* Denotes Manufacturing and Engineering facilities

Downhole Solutions

Drilling Solutions

Engineering and Project Management Solutions

Lifting and Handling Solutions

Production Solutions

Supply Chain Solutions

Tubular and Corrosion Control Solutions

Well Service and Completion Solutions